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AUTHOR Richards, Regina G.
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ABSTRACT

The significance of research on hemispheric differences for working with the learning disabled child is considered. Several methods for assessing a student's hemispheric preference are reviewed. It is suggested that the curriculum include teaching strategies that address both left and right brain functioning. Techniques for involving both hemispheres are noted to involve mnemonics, metaphors, mind-maps, music, visual strategies, imagery, and positive suggestions. Charts, illustrations, tables, and lists regarding lateralization and teaching techniques are included. (SW)

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INNOVATIVE RIGHT BRAIN TEACHING TECHNIQUES
Regina G. Richards, M.A.
Educational Therapist

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The research on hemispheric differences has important significance for working with the learning disabled child. It gives us as teachers a gestalt or plan of action for how to approach the children in our classroom. Our goal should be to help each child experience whole brain learning. To just emphasize one hemisphere or the other does a disservice to the child. There are things that are done in a classroom via traditional curriculum that do not allow a child to learn, or that interfere with learning. Our goal should be to identify these interfering factors, get rid of the interferences, and enhance strategies that encourage rather than discourage learning.

The cortex is a relative newcomer on the evolutionary scale. It has tremendous potential for growth and for the development of new interconnections through learning and stimulation. At birth our cortex is approximately 20% of its eventual size. When we are born this intricate system is very plastic, and as we grow and develop we begin to lose that plasticity. Some research says that there may be brain spurts throughout childhood to way past puberty. New growth in the brain really refers to the density of the dendrite system, for it is the dendrites that help make the innerconnections.

Why must we be aware of what is going on in research today? It is important because there is a need to close the gap that exists between predominantly left brain teaching strategies and the right brain learning styles that exist in education today. In Ronald Rubenger's Educating the other half: Implications of Left/Right Brain Research (1), he summarizes research ranging from 1971 to 1982 and states, "The learning disabled child is often likely to be an example of a right-brained child in a left-brained educational system. Research on learning disabled students consistently reveals a high prevalence of right brain information processing styles. The characteristic processing difficulties encountered by the learning disabled child, such as language and sequencing disorders (reading/writing difficulties, letter reversals, inversions), are indicative of the right brain's nonverbal random information processing style".

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Many studies concur that although localization of different functions exist, the functions are much more complex and variable than originally thought. Refer to Figure 1 for a pictorial representation of the sensory and motor regions of the brain.

Recent brain research is providing new information all the time regarding the learning process and this information has significant implications for education. This research is based in large part on the split brain studies conducted by the nobel prize winner Dr. Richard Sperry and his associates at the California Institute of Technology. This occurred in 1981 and we applaud his innovative

contributions to the field of brain research. This and other brain research conducted over the last fifteen years has identified two very different modes of learning associated with the right and left hemisphere. One hemisphere processes information primarily in a verbal, linear, sequential, logical manner (left brain) while the other hemisphere processes information primarily in a nonverbal, global, intuititive manner (right brain). It is no longer as dichotomized as it once was but the generalities still hold. Refer to Figure 2 for a representation of our hemispheres.

Our traditional educational system clearly places much greater value on left hemisphere learning. Reading, writing, spelling, and math as they are presently taught in most classrooms are primarily left brain activities. Students who process information in other ways are at a serious disadvantage and many not be learning efficiently. Instructional methods that encourage an integration of learning from both hemispheres allow all students to learn more efficiently with less effort and with more success.

Refer to Figure 3, "Hemispheric Specialization". This is a summary of current research. Note that the arrows on the sides identify which ideas have been more clearly demonstrated through experimental evidence (those towards the top) and which represent increasing speculation. As shown here, there are three main dichotomies in learning modes.

1. Verbal vs. Non-verbal and Visuo-spatial. This visuo-spatial area is a powerful one that is often overlooked.
2. Sequential and Temporal vs. Simultaneous, Spatial, Gestalt, and Synthetic. This is one of the major dimensions in learning and is an area tapped by the Kauffman K-ABC battery.
3. Rational vs. Emotional. Many of us make decisions about children based on test data, but don't we also pay attention to our "gut-level" feelings or intuitions?

We need instructional methods and strategies that INTEGRATE modes from both hemispheres. It has been estimated that between two and three million students today in kindergarten through grade twelve have predominantly right brain styles for learning.

We need to attend to the critical need for communication between the hemispheres. For example, it has been shown that short term memory (primarily in the left hemisphere) is significantly decreased when communication between the hemispheres is impaired. A major study found that divergent production scores on the SOI (Structure of Intellect) significantly increased as a result of creativity training. The training procedures provided opportunity for the students to shift back and forth from left-hemisphere to right-hemisphere processing depending on the task demands, and thus

they were integrating processes. It was discovered that left brain (convergent) task performance on the SOI also improved significantly by creativity (integrated) training. These findings suggest interdependency between the hemispheres for optimal cognitive functioning (2).

ASSESSING STUDENTS PREFERENCE

One method for assessing student's preference is to use formal testing such as the WISC-R and Reitan battery. But what are we able to use in the classroom?

Tony Buzan (3) provides what he calls a left brain/right brain check. He states, "Even after hearing the evidence of Roger Sperry's research many people still doubt that they really have both left brain and right brain abilities. To check on your left brain simply ask yourself whether or not you can speak and understand one language. If you can, the left side of your brain is already operating in a manner that is far more sophisticated than the most modern computer. In order to have learned the language you must have used the other left brain skills of numerosity, logic, analysis, and sequencing.

To check on your right brain ask yourself the question, 'where do I find myself physically located when I come up with those bursts of imaginative, creative problem solving ideas?'

Most people find themselves in the bathroom, taking a shower, on the toilet, in front of the mirror, in bed, driving, walking in the woods or by the sea. In most of these relaxed and unhurried situations the individual is at ease and usually alone. When you have such imaginative ideas it is the right side of your brain that is functioning and it functions best in situations like those described during which the left side of your brain gets a well earned rest."

Buzan also says that another right brain check is to observe the effects of excessive alcohol. "Alcohol suppresses the left brain activities that normally keep us organized and safe in the environment and releases those chemicals that normally hold many of our right brain processes in appropriate check. If you feel that many people inherently have little imagination simply reflect on their imagination after they have taken five or six stiff drinks. Some people become so imaginative that they actually imagine they are being logical. This is not to suggest that one should drink in order to be imaginative for continued drinking in the long run actually decreases overall mental capacity. The example simply indicates that the creative power is there and that it is up to us to let it express itself."

Vitale in *Unicorns are Real* (4) provides an observation checklist to use with children. She mentions that this is for those people who do not want to bother with systematic screening and would rather make a determination from observing the child at home or at school. She provides a list of behavioral characteristics displayed by many right hemispheric children. Not all right hemispheric children will

display all of the characteristics and children who are laterally balanced will display both left and right hemisphere characteristics. Keep in mind that you need to temper any decision that you make about hemispheric dominance with the fact that there is still much to learn about the human brain. Also keep in mind that most children are not totally left brained or totally right brained. Some are extremely right or left, others vary in the degree of dominance of either hemisphere. Brain patterns are as individual as fingerprints. Refer to Figure 4, Modality and Dominance Screening.

INFLUENCE ON CURRICULUM

What is our goal in providing whole brain experiences when we are planning curriculum? Our goal is to experience the whole brain in operation. In order to do this we have to step outside of the mode of traditional left brain teaching and incorporate some right brain innovative strategies.

Although one hemisphere may predominate in a particular task, a portion of the processing load may be distributed to the other hemisphere, particularly in higher level mental functions. Therefore, a functional spill-over relationship between predominant and subordinate hemispheres best reflects the brain's actual processing patterns. Originally based on Sperry's research the trend was to think a process operated as solely left brain or solely right brain. As more and more studies are being conducted with people without cerebral pathology and using more sophisticated technology, we are finding out more about this functional spill-over relationship.

Teaching strategies that do not address both left and right brain will contribute to lopsided development of an individual. Our goal is -- and should continue to be -- to provide a balanced curriculum. We want to have methods that may be used in a group and that will enhance the learning of ALL learners. Therefore, we need techniques that will challenge both hemispheres and integrate both hemispheres so that we can use more of them.

Refer to Figure 5 for a listing of some ways to translate what we know about brain processing to classroom techniques. These strategies do not include all the strategies that challenge the whole brain, but do include some of them. We can group these into seven general groupings. I will give you an overview but we will spend more time on the use of metaphores and mnemonics. Refer to Figure 6 for these instructional methodologies which are referred to as "4M" and "VIP". "4M" and "VIP" is a mnemonic to help us recall the seven categories of mnemonics, metaphors, mind-maps, music, visual strategies, imagery, and positive suggestion.

#1: MNEMONICS

A mnemonic is a specific technique used to aid in memorizing information. These techniques make memory and remembering much easier by creating a link or association, and the sillier the better. Basic to the association process is that the images have clarity and are securely linked with the information which is to be memorized. There are acronyms like "FACE" and "every good boy does fine" as used in music. Recalling the spelling of ARITHMETIC as "a rat in the house might eat the ice cream" is a sentence link. There are also sentence links for trouble spots in English spelling such as contained in Demonic Mnemonics (5). For example, mnemonics are provided for remembering the spelling of "tattoo" and "canoe" via the sentences, "My cat, too, got a tattoo" and "This canoe leaks like a shoe". The appropriate "silly" pictures are provided to help encourage visualization of the mnemonic.

Memory Foundations for Reading (6) is a program designed to teach sound/symbol correspondences through a phonic mnemonic system. Silly pictures are provided with silly sentences designed to highlight key words to help remember the sound associated with various letters. One unique aspect of this program is that the sounds and symbols are divided into three interrelating sections. Section one provides mnemonics for the main sound of each letter plus vowel-e and vowel-r. Section two provides mnemonics for letters which have more than one sound, such as the three sounds of vowel-y. Section three provides the mnemonics for letters which have a multiplicity of sounds, such as all the ways to spell long a. The sections are interrelated in that the key word is linked throughout all three sections. For example, a as in APPLE is in sections one (1.2) and two (2.7) and e as in Ed is in all three sections (pictures 1.2, 2.9, and 3.9). Refer to Figures 7 and 8.

#2: METAPHORS

The goal in using metaphors and other associative techniques is to create a link or association between something that is familiar to you, from your own experience, and something that is unfamiliar. By connecting two unlike things we bring them to a common trait and it is a very effective way to learn and retain new information. When we think about it, all learning is connected and involves the process of making connections. You understand something in terms of everything else that you understand. The process of working with metaphors can be very engaging. Let's take an example from a science curriculum. Let's say last month we studied volcanoes. This month maybe we studied revolution. We could ask, "How are volcanoes and revolutions alike?"

Another example, when molecules in a liquid (or in mercury in a thermometer) are cold, what happens? They are sluggish. When they are hot they move fast, like in boiling water. To encourage the forming of a metaphor, we ask, "What happens to oil when you put it in the refrigerator?" "What happens to oil when it's out on the

counter on a hot day?" "How is oil like the mercury in the thermometer?" It is important that students are able to make the connections themselves.

There are two types of metaphor usages. One is the type of metaphor we as teachers use to teach information or to review and summarize a unit. The other type of metaphor is the type that the student can use on his own to think about how well he understands something. Many children in a special education situation do very well and then have trouble in their mainstreaming environment. They say to their teacher, "But I don't understand" Well, that does not give the teacher a whole lot to go on to help that child. If the student can say, using a metaphor, "I understand this thing is like something else, but how is it different from this other thing?", then that would help their teacher to better explain it.

To start with metaphors, start simple by asking questions like "How is a cat like a dog?" Most students can do this. The sensory connections (what they see, feel, smell, touch) are the easiest to make. Higher order connections are those that are functional connections. They are very useful and very important, but they are also harder to make in terms of connections. For us as teachers the questioning procedures we use are very important. We need to start with, "Well, what do you know about such and such? (i.e., volcanoes). Brainstorm the answers. Get a whole list of ideas of what you know about volcanoes. Then you ask, "Is this concept the same or different from revolutions?" "How is it the same?" "How is it different?" If we are using it for teaching, we must have in mind the main goals we want to focus on.

In math, you could do a subtraction problem. Then ask, "How was the process of what you did like a bank robbery?" One answer may be, "you take something away but you still have something left". "What else is like this?" (i.e., eating Halloween candy, spending allowance).

The beauty of metaphors is that it involves both hemispheres and creates a synthesis between activities going on. We can use metaphors to evaluate, to see if students really understand. We use metaphors to make hypotheses. For example, "If revolutions were like volcanoes what would you expect to happen to the people at the top?"

If we can teach students to make connections we can teach them a tool that they can take with them forever, wherever they go, in whatever situation, mainstreaming or special education. There are two steps. First, you use the metaphor and then, you ask your students to use the metaphor. You probe and you question. To generate a teaching metaphor you have to be clear about your own goals about the subject and you have to be very specific. You have to know in your own mind how is it different from other things like it. It is important to teach in terms of what the students know. Two main criteria are: (1) it should be familiar to students, (2) it should not have too many discrepancies.

Here is a list of some questions that elicit metaphors from the students. (1) "What do you know that is like such and such?" (2) "How is it alike?" (3) "How is it different?" It is critical to their understanding that they understand the differences. (4) "What is like this?" For example, "What animal is like this?" "What machine is like this?" "What color is like love?" "What color is like fear?" For a student all metaphors are correct as long as they tell a connection.

#3: MIND MAPS

Mind mapping is a technique of mapping out and organizing information. It allows for a visual organization rather than a sequential, verbal organization. Note in Figure 9 that the initial ideas are jotted around a central focus. Key concepts are connected and structured in a way to provide clarity. The mind map structure is not linear, it is a circular pattern and allows additional information to be easily inserted. This open ended structure facilitates rapid connection of thought patterns and immediate feedback of the total process. This idea is called patterning in a wonderful resource book called Doodling Your Way to Better Recall (7). This book is a super, practical "how-to" book that I highly recommend.

#4: MUSIC

We all know about the many benefits of music, rhythm, and movement. Music can be used as a means for relaxing and quieting the mind, preparing you or the children for what follows. Rhythm such as a metronome is used not only to enhance total integration of various parts of the body but it may be used to present concepts. For example, there are many fine activities in the book A, E, I, O, Y, and sometimes Y, subtitled "109 Fun Ways to Enjoy and Improve Spelling in the Classroom" (8).

#5: VISUAL STRATEGIES

Visual strategies may include things like picture writing, problem solving, graphing, cartooning and doodling. It is any activity to which applies the adage, "one picture is worth 1,000 words." These techniques are useful when discussing and outlining a story visually, as in Figure 18.

Other visual strategies include emphasis and exaggeration. Emphasis forces concentration and highlights specific areas. It is a tool which endeavors to reach all students with all kinds of learning styles. By exaggeration we may overstate, or increase the intensity through verbal or visual means. Color, size, humor, are critical tools for exaggeration. Refer again to Figure 10.

#6. IMAGERY

Imagery and visualization are fun ways to encourage students to focus in on a fantasy. We encourage them to see pictures in their mind's eye. The cartoon in Figure 11 represents this well.

Here are six sample exercises using this strategy:

- (1) Say: "I am going to give you two unrelated words to remember and I want you to see the picture in your mind. Key. Dog."
- (2) Some exercises can relate to music or rhythm. Have them visualize what they hear and then express it.
- (3) You may use a feely box: have them feel something then visualize it and draw it.
- (4) You may use absurdities, i.e., train flying over the moon, fish pulling a carriage over water, chairs driving down the freeway.
- (5) Visualization is an excellent technique to use with reading comprehension activities.
- (6) Visualization works well when combined with mnemonics.

You can use fantasy to teach cognitive material. For example, "Imagine yourself as a zero. Now multiply yourself by 326. How did it feel? How did it feel to wipe out this number? Did you feel powerful? Did you feel empty, responsible? O.K., now imagine again that you are a zero and leap on the end of 547. How did you feel? What about if I put you at the beginning? Do you like it as much? Why or why not?"

Here is another one: "What do you do when you are cold in bed? Now imagine you're the liquid in a thermometer. What if I put you in a glass of ice water? What if I put you in a glass of warm water?"

How do you design a fantasy? The key is to use movement and use drama. Keep in mind that it is easier to be an animal than a thing and it is easier to be a machine that moves than a machine that does not move.

As a teacher you write a script and then you elicit the sensory information. For example, here's a script.

"Close your eyes, relax, become very tiny. Imagine you are a seed. You are in a seed pod with others. You begin to grow. Your pod stretches. You feel the muscles in your pod stretching. You feel the sensation of the other seeds next to you. You feel the pressure of them against you. You feel crowded. Soon it will become time to leave. Imagine how you are going to do this. Imagine how you are going to stretch your muscles. Imagine how you are going to travel. Now you begin to experience something new, something different. You experience light. You experience air. What does it feel like? What does the light feel like? What does the air feel like? Now it is time to leave. You feel the air on your muscles. You feel the warm sun on your muscles. How are you going to move? Where are you going to go?"

At the end of the fantasy open your eyes. "How did you travel?" The rule for responding is to use the first person, i.e., "I traveled such and such." Please note that muscular imagery and muscular fantasy is the hardest to evoke. Be sure to ask questions to stimulate this.

#7. POSITIVE SUGGESTION

Positive suggestion includes relaxation techniques and may be almost anything. It may be a one or two minute break in the activity where you come in, turn off the light, and have everybody focus in on their breathing. It can also extend to a full fifteen minute session on relaxation, using techniques such as Jacobson's. The emphasis is on memory skills, expressive language communication, and particularly decreasing tension and frustration while generating creative thinking. Positive suggestions are often used in many classrooms. Here are some that stimulate visualization. Refer to Figure 12.

Hopefully, these suggestions will help you to incorporate some innovative right brain techniques into your classroom. Have fun!

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SOMATIC SENSORY AND MOTOR REGIONS of the cerebral cortex are specialized in the sense that every site in these regions can be associated with some part of the body. In other words, most of the body can be mapped onto the cortex, yielding two distorted homunculi. The distortions come about because the area of the cortex dedicated to a part of the body is proportional not to that part's actual

size but to the precision with which it must be controlled. In man the motor and somatic sensory regions given over to the face and to the hands are greatly exaggerated. Only half of each cortical region is shown: the left somatic sensory area (which receives sensations primarily from the right side of the body) and the right motor cortex (which exercises control over movement in the left half of the body).

Figure 2. Specializations of the Human Brain.

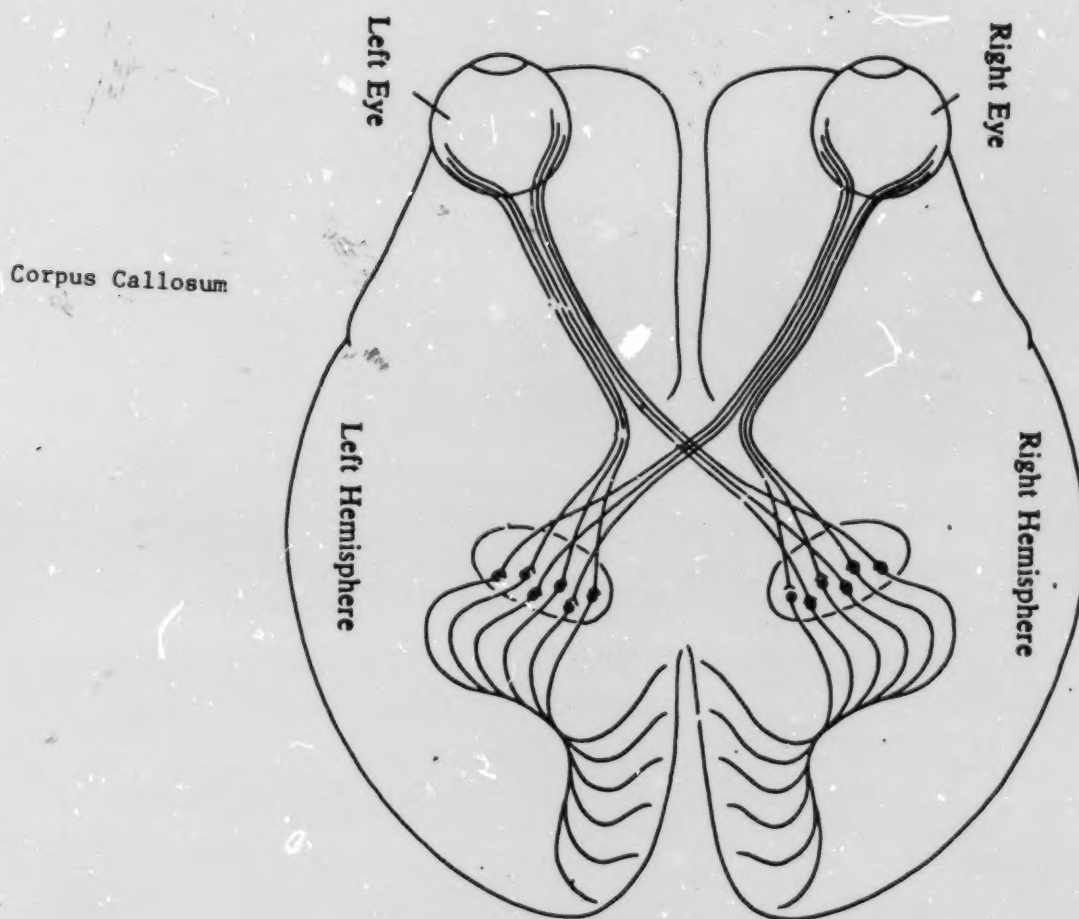
From "Specializations of the Human Brain" by Norman Geschwind.

Left Hemisphere Functions

Verbal
Analytic
Abstract
Rational
Temporal
Digital
Propositional

Right Hemisphere Functions

Preverbal
Synthetic
Concrete
Emotional
Spatial
Analogic
Appositional



Right
Visual Field

Left
Visual Field

HEMISPHERIC SPECIALIZATIONLEFT BRAINRIGHT BRAIN

VERBAL: Using words to
name, describe, define.

NON-VERBAL: Awareness of things,
but with minimal connections
with words. Recognizing
music, environmental sounds.

SEQUENTIAL: Sequencing one
thing after another.

SIMULTANEOUS: Seeing things all
at once.

TEMPORAL: Keeping track of
time.

SPATIAL: Seeing where things are
in relation to other things,
and how parts go together to
form a whole.

LOGICAL: Drawing conclusions
based on logic, one thing
following another in
logical order.

GESTALT: Perceiving the overall
patterns and structures, often
leading to divergent conclusions.

ANALYTIC: Figuring things out
step by step and part by
part, taking things apart.

SYNTHETIC: Putting things together
to form wholes.

RATIONAL: Drawing conclusions
based on reason and fact.

INTUITIVE: Making leaps of insight,
often based on incomplete
patterns, hunches, feelings or
visual images.

INCREASING EXPERIMENTAL EVIDENCE

INCREASING SPECULATION

MODALITY AND DOMINANCE SCREENING

1. Appears to daydream.
2. Talks in phrases or leaves words out when talking.
3. Uses his fingers to count.
4. Draws pictures on the corners of his homework papers or dittos.
5. Has difficulty following directions.
6. Makes faces or uses other forms of non-verbal communication.
7. Displays fine motor problems (cutting, writing, or pasting) when asked to conform or do structured tasks. Fine motor problems rarely appear when the child is doing something he has selected.
8. Is able to recall places and events but has difficulty in recalling symbolic representations such as names, letters, and numbers.
9. May have difficulty in phonics or decoding skills.
10. Is on the move most of the time.
11. Likes to work part-way out of his seat or standing up.
12. May exaggerate when retelling an event in which he has been involved.
13. Often has a messy desk.
14. Has difficulty in completing his work on time.
15. Likes to take things apart and put them back together again.
16. Displays impulsive behavior.
17. Tries to change the world to meet his own needs.
18. Likes to touch, trip, and poke when relating to other children.
19. Goes to the pencil sharpener often.
20. Gets lost coming to the classroom.
21. May forget what he went to his room to do.
22. May be very good in athletics but poor in subjects such as English.
23. Will give the right answer to a question but will be unable to tell you where it came from.
24. Will often give responses that are unrelated to what is being discussed.
25. May be a leader in the class.
26. May chew his tongue while working.

Not all right-hemispheric children will display all of the above characteristics and children who are laterally balanced will display both left- and right-hemispheric characteristics. Temper any decision that you make about hemispheric dominance with the fact that there still is much to learn about the human brain.

INSTRUCTIONAL STRATEGIES THAT INTEGRATE MODES FROM BOTH HEMISPHERESVERBAL - NON-VERBAL LEARNING

1. VISUALIZATION-IMAGERY: for academic and affective learning
2. PICTURE WRITING AND PICTURE NOTE-TAKING; for reading comprehension, sequencing
3. MUSIC: for transition, stress reduction, instruction
4. RHYTHM: for spelling, math, to assist with rote memorization
5. SINGING: for rote memorization of rules, facts
6. CHORAL READING: for reading comprehension, fluency, expression
7. GESTURES: Signing and finger spelling for spelling, language development
8. MOVEMENT: using whole body and kinesthetic mode
9. DEMONSTRATION: modeling and giving examples of desired result
10. REVISUALIZATION: for spelling, using methods from Neurolinguistic Programming
11. "TELL IN TIME - SHOW IN SPACE": write information on board as well as telling verbally
12. COLOR: to emphasize, exaggerate critical elements

SEQUENTIAL - SIMULTANEOUS LEARNING

1. MIND-MAPS AND CLUSTERING: for organization, writing, teaching concepts
2. WHOLE WORD READING: sight words, "look-say", contextual reading
3. CLOZE METHOD: for reading comprehension
4. CONFIGURATION: for spelling, word recognition
5. SCANNING: reviewing material to get "big picture", to increase reading speed
6. ESTIMATING: making sensible guesses in math
7. TESTING VARIETY: using untimed tests as well as timed, essay questions as well as true-false, multiple choice questions.

SEQUENTIAL - SIMULTANEOUS LEARNING (Continued)

8. UNLINED PAPER AS WELL AS LINED: providing alternatives for students, including colored as well as white
9. CHAIRS AND DESKS IN A VARIETY OF PATTERNS: not always in rows
10. OVERVIEW OF LESSON: where are we going?
11. CULMINATION ACTIVITIES: where have we been?
12. SIMULATIONS: putting learning in context
13. STUDY TECHNIQUES - SQ3R: Survey, Question, Read, Recite and Review

LOGICAL - INTUITIVE LEARNING

1. RELAXED, POSITIVE ATMOSPHERE: creating a classroom atmosphere conducive to learning
2. ATMOSPHERE OF TRUST: establishing relationships, classroom practices free from threat
3. BRAINSTORMING: nonjudgmental stimulation of ideas, solutions
4. METAPHORS: making associations and links
5. FANTASY: creating mental pictures, using imagination
6. ART: drawing pictures of stories, feelings
7. POETRY: developing creativity, writing abilities
8. DANCE: using body and movement to integrate learning
9. VALUES CLARIFICATION: activities to develop self-concept
10. SELF-ESTEEM ACTIVITIES: opportunities for success and acceptance of individuality
11. CLASS MEETINGS: practices to encourage group problem solving
12. THINK-ALOUD PROBLEM SOLVING: using self-talk for self-control
13. HUMOR: riddles, jokes, puns for divergent thinking, motivation

4M & VIP

Instructional strategies that incorporate right brain procedures

4M

1. MNEMONICS

Mnemonics and other memory techniques stimulate spatial and simultaneous strategies integrated with more sequential, linear strategies.

2. METAPHORS

Metaphors and other associative techniques provide a link between the characteristics of a familiar concept and new information.

3. MIND-MAPS

Mind-mapping may also be called clustering and provides innovative methods for organizing information. These are effective in improving oral and written language, study skills, and memory.

4. MUSIC

Music, rhythm, and movement are effective techniques which may help to create a relaxed, stress-free learning environment. These may be used to strengthen language arts skills through choral reading or chanting of spelling words.

VIP

1. VISUAL STRATEGIES

The old adage "a picture is worth a thousand words" is indeed true. Techniques here include picture writing, charting, and cartooning.

2. IMAGERY

Through imagery, visualization, and fantasy, students learn to use their "mind's eye" to form visual images. These then strengthen and reinforce learning.

3. POSITIVE SUGGESTION

Positive suggestion also includes relaxation techniques. Learning is accelerated when a relaxed, positive atmosphere is provided and the fear of failure is reduced.

MEMORY FOUNDATIONS FOR READING

MFR

by Regina G. Richards and Jeralee A. Smith
Academic Therapy Publications

List of Mnemonic Pictures

Set 1: Primary Sounds for Each Letter

- 1.1 tiny monkeys kiss fat pig
- 1.2 apple Ed is on umbrella
- 1.3 bunnies jump high
- 1.4 goat licks nine rocks
- 1.5 these chickens saw shadows
- 1.6 doll with yellow whistle vacuums zebra
- 1.7 qu and x: queen fox
- 1.8 Vowel - e: Eve types, "Huge snake broke bike"
- 1.9 Vowel - r: she stirs tar with her purple horn

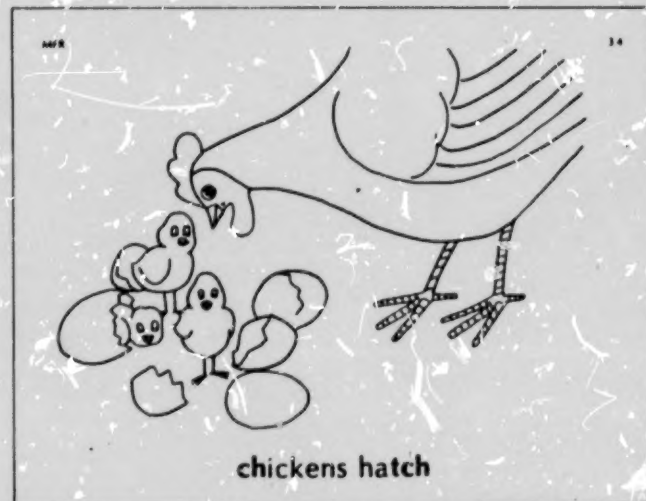
Set 2: This letter (or digraph) makes all these sounds

- 2.1 Vowel y: Lynn and fly rat candy
- 2.2 c city cat and country cat
- 2.3 g George goat
- 2.4 s saw rose
- 2.5 ch chicken chef washes Christopher
- 2.6 th these thumbs
- 2.7 a apple watches baby fall
- 2.8 i this is tiger
- 2.9 e demon Ed
- 2.10 o Tony on money
- 2.11 u Ruby with umbrella on bugle bush
- 2.12 oo hook the moon

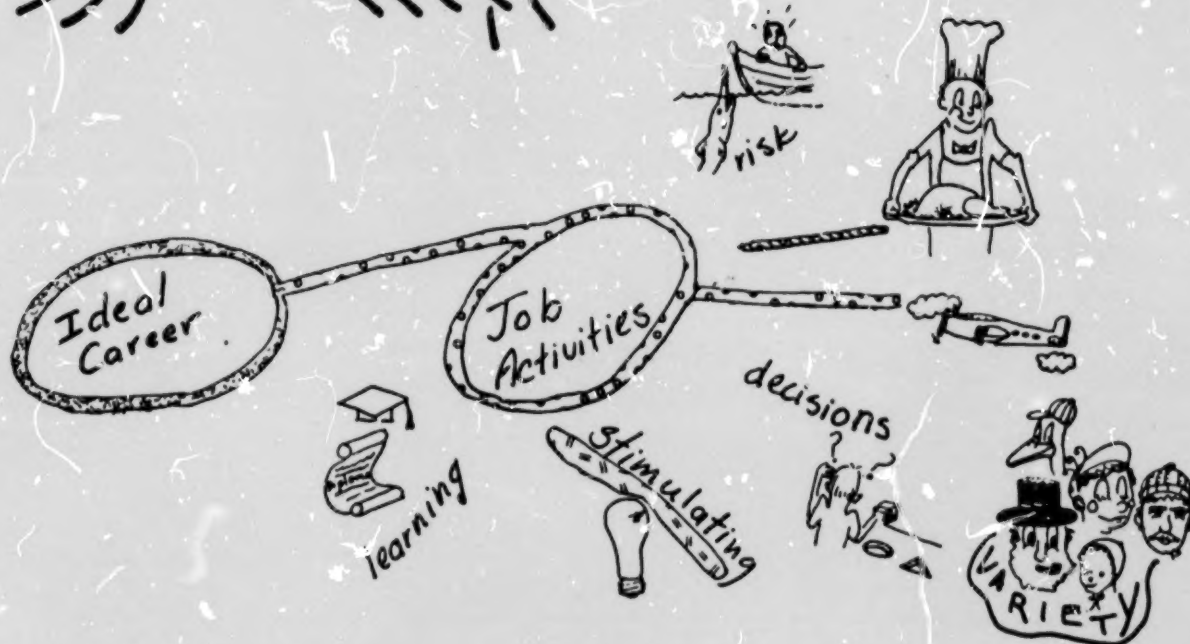
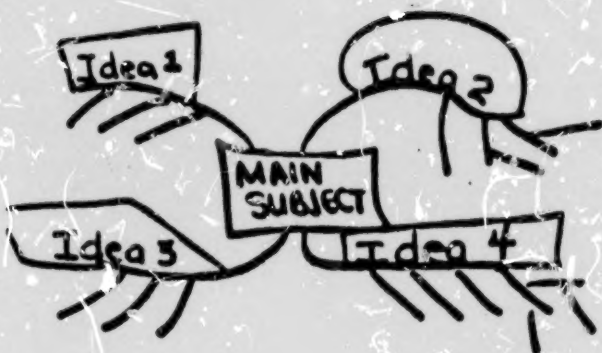
Set 3: This sound is spelled all these ways

- 3.1 /f/ fat Phillip
- 3.2 /k/ Christopher cat kisses duck
- 3.3 /j/ George jumps
- 3.4 /ch/ chickens hatch
- 3.5 /a/ baby sprays paint on the snake
- 3.6 /a/ Hey, eight great veins
- 3.7 /e/ demon eats sweets
- 3.8 /e/ Eve and the chief catch candy from the ceiling
- 3.9 /e/ Ed has bread
- 3.10 /i/ fly and tiger on bike
- 3.11 /i/ pie types "igh" words
- 3.12 /i/ this is Lynn
- 3.13 /o/ arrow Tony broke the boat with his toe
- 3.14 /o/ watches are on
- 3.15 /u/ huge Eugene rescues a few bugles
- 3.16 /u/ money umbrella
- 3.17 /oo/ Ruby threw the prune soup at the blue moon
- 3.18 /oo/ hook bush
- 3.19 /s/ giant saws city
- 3.20 /z/ zebra rose
- 3.21 /sh/ chef's shadow
- 3.22 /o/ Paul falls into straws
- 3.23 /oi/ oil boy
- 3.24 /ou/ out cow!

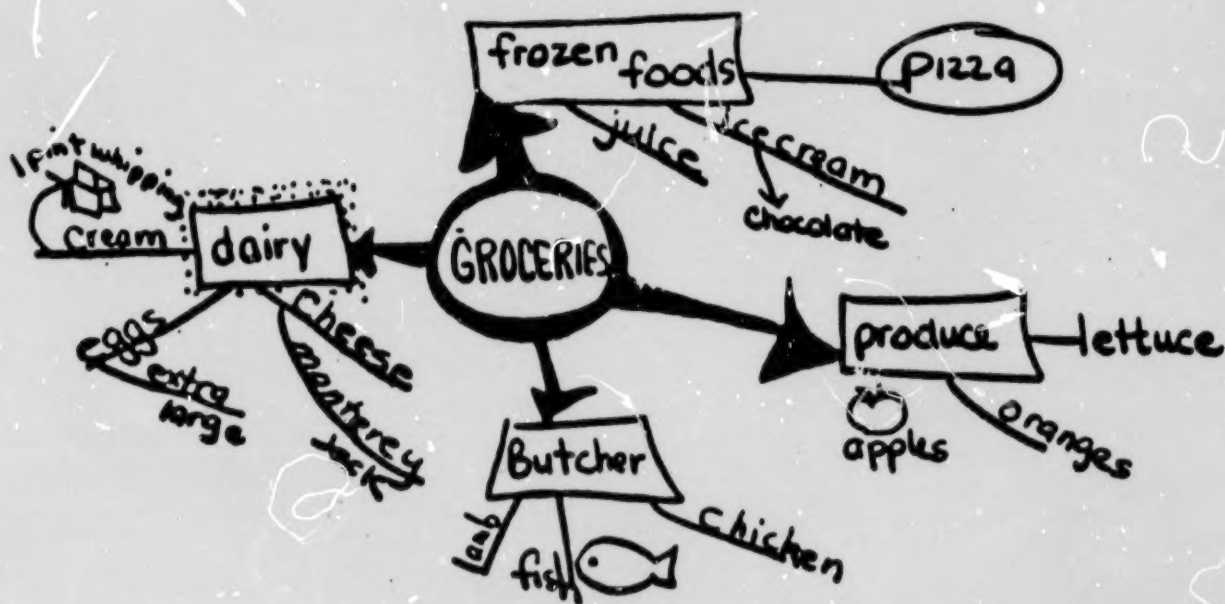
MFR - Sample Mnemonic Pictures



Mind Mapping Clustering

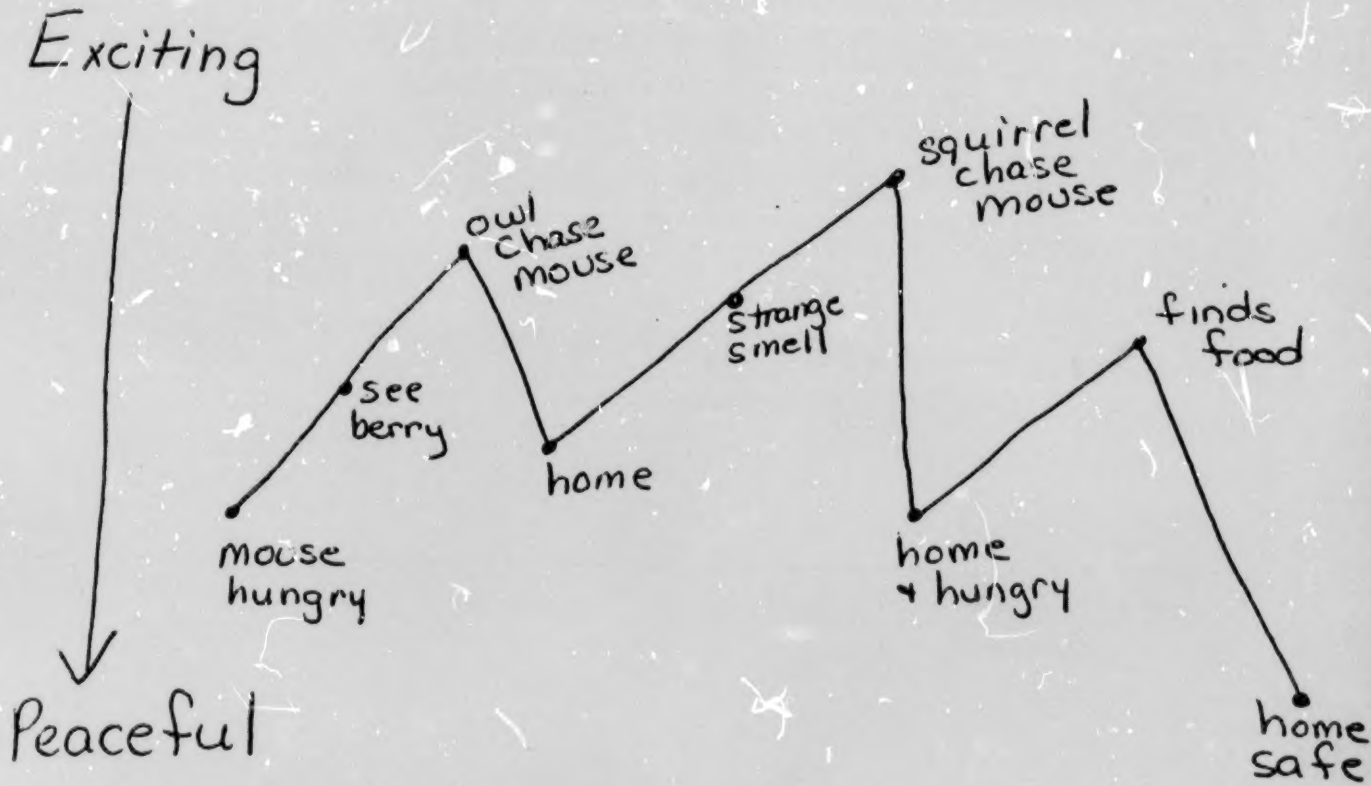


Ideally, the pattern would include pictures (doodles and symbols) as well as words; they are great attention-attractors and tend to be remembered longer than words.



Visual outlining:

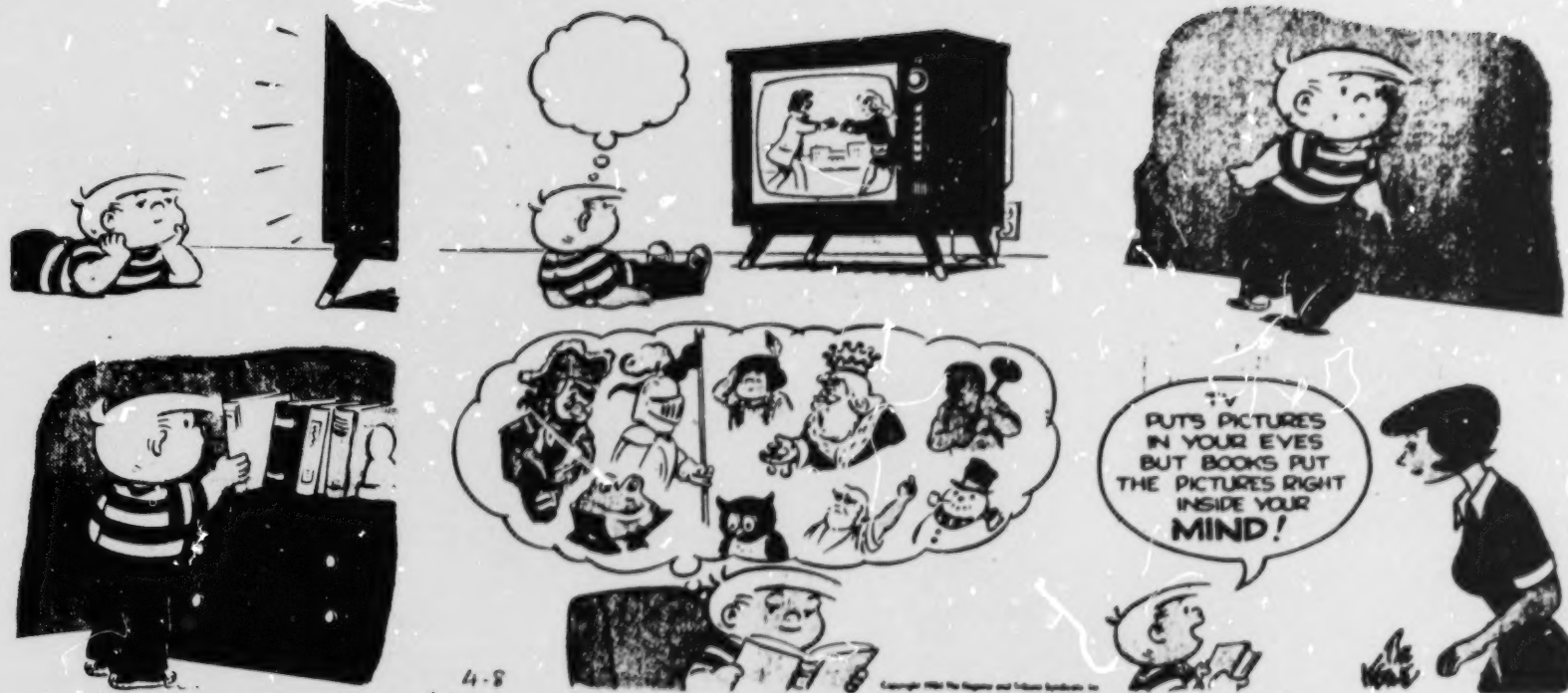
1. Read story
2. List events
3. Sequence events
4. Graph events

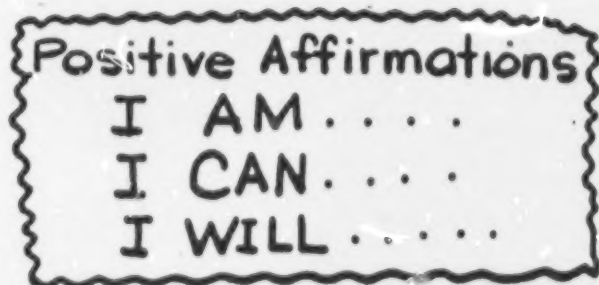
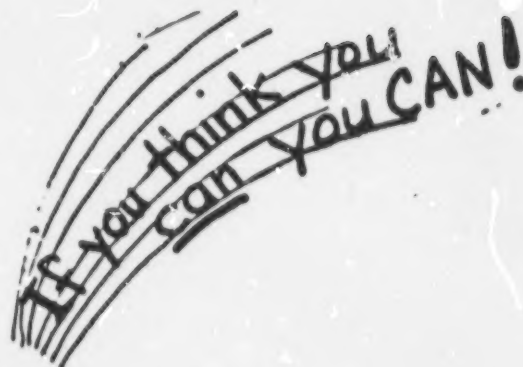
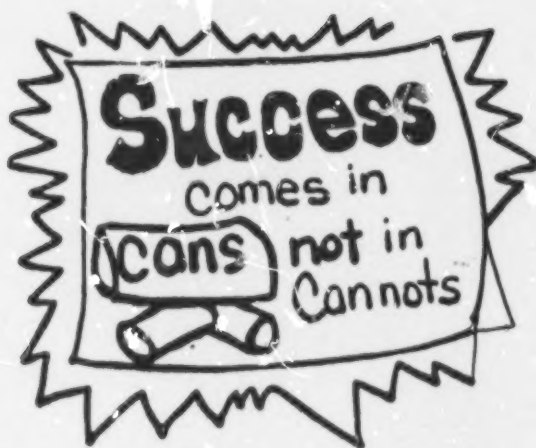


Exaggeration:

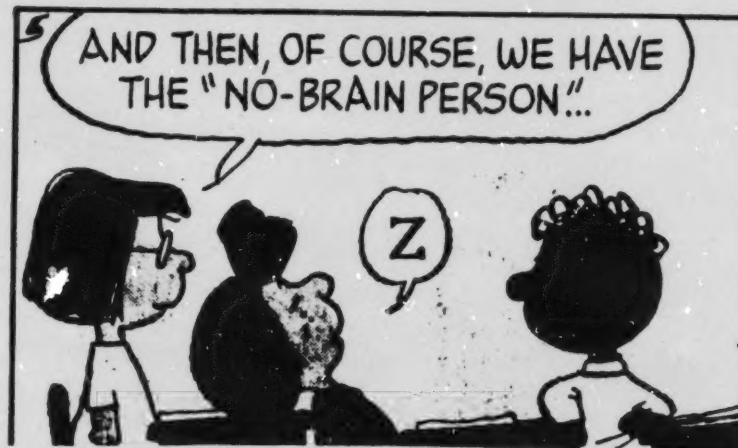
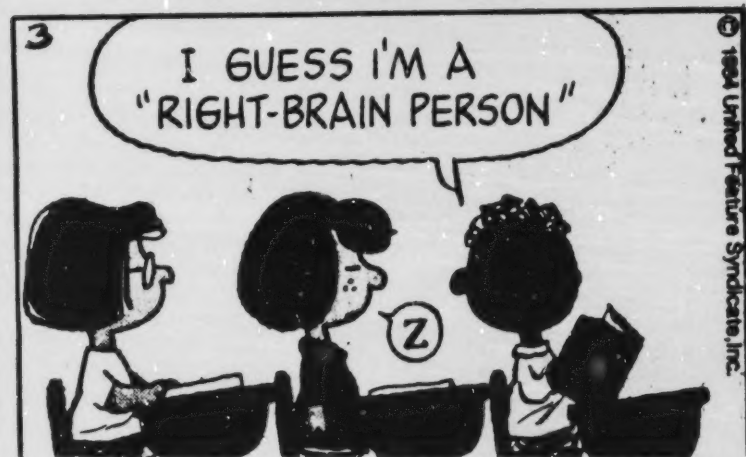
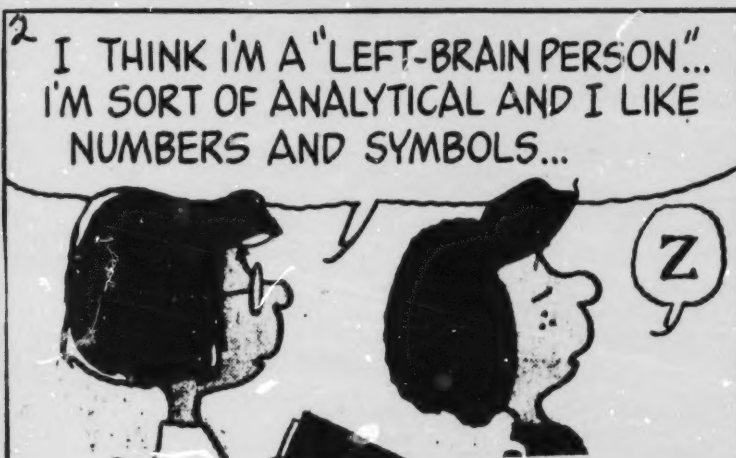
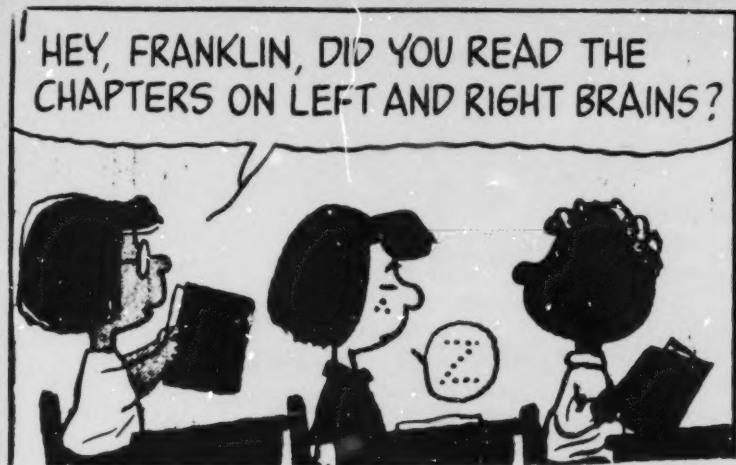
friend
a friend to the end

because





*a mistake
is your
best friend.*



Paper presented at the Annual Convention of the Council for Exceptional
Children (62nd, Washington, DC, April 23-27, 1984)